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Guesswork:

The Troubled Past of Prediction

Zachary Shore
Naval Postgraduate School

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RESEARCH PAPER

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Guesswork: The Troubled Past of Prediction

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October 2010

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EXECUTIVE SUMMARY

This paper takes a historical look at 20th-century efforts to assess the enemy. It concludes that consistently accurate prediction of individual behavior in foreign affairs is highly unlikely because individual motives are so often opaque. Yet it also suggests that thoughtful, non-quantitative analysis can produce reasonably accurate predictions of group behavior.

Historical cases considered below include:

- British and American assessments of German intentions in the 1920s.
- American assessments of Egyptian weakness in the Yom Kippur War.
- U.S. assessments of Soviet intentions in the Cold War.
- Contemporary American assessments of China's future strength.

These cases suggest the following for prediction models:

- Prediction of individual behavior depends on accurate assessments of enemy intentions.
- Individual enemy intentions are fluid and often inconsistent, therefore impossible to quantify reliably.
- Accurate assessments of others' intentions depend on human judgment, which is too often fallible.
- Quantitative models cannot substitute for human judgment.

INTRODUCTION

Most of us long to know the future, especially in troubled times. But lately behavioral scientists have been shattering our crystal balls. The scholar Philip Tetlock has been widely cited for revealing that the more renowned the expert, the more likely his predictions will be false (Tetlock, 2005). The psychologist Daniel Gilbert tells us that we cannot even predict what will bring us joy, since our expectations are almost always off (Gilbert, 2006). And the gleefully irreverent market trader Nassim Taleb argues that the massive impact of black swans – improbable but surprisingly frequent anomalies -- makes any effort at prediction fruitless (Taleb, 2007). Most notable of all, the economist Dan Ariely has exposed the flawed models for predicting our behavior in everything from the products we buy to the daily choices we make (Ariely, 2008). Of course, they're all right. We are abysmal at prediction. But the skeptics have missed a crucial point: we're getting awfully good at guessing.

Across the United States, Europe, and beyond, tiny bands of the brightest minds are convinced they can see the future. Their ranks include the Pandora company's team of music theory Ph.D.s predicting the songs we'll want to hear, political scientists crafting models of how statesmen will behave (Bueno de Mesquita, 2009), and military strategists projecting enemy actions when at war. Aspects of the future once thought ineffable are now drawing microscopic scrutiny. Multinational conglomerates are scanning consumer brain waves to know which products should be sure to sell. Even so-called "Love Labs" are probing the biochemical bases of attraction to foretell our perfect match. Some are seeking profits, others only power. But all are committed to the view that humans behave with regularity and their actions can be foreseen. They view the future as an enigma waiting to be deciphered. These are the modern-day oracles, grounded in science, and wedded to a mission. Though each group is independent of the rest, their collective aim is the same

– to crack the uncertainty code.

But could the future really have a code just waiting to be cracked? Technologies and medicines, or trends throughout the natural world, can be extrapolated from today. But how far can the affairs of humans be reliably foreseen? Of all the earnest, costly measures to predict behavior, which ones are striking pay dirt and which ones are striking out?

This paper takes a historical look at 20th-century efforts to assess the enemy. It concludes that consistently accurate prediction of individual behavior in foreign affairs is highly unlikely because individual motives are so often opaque. Yet it also suggests that thoughtful, non-quantitative analysis can produce reasonably accurate predictions of group behavior.

PART I - PREDICTION PITFALLS

Before we turn to particular historical cases of prediction, we need to understand some critical components of character assessments. The first involves the role of information in assessments and prediction. A dangerous misconception has lately been afoot, cropping up across much of the literature on decision making. Studied by psychologists for years and popularized in Malcolm Gladwell's *Blink*, "thin slicing" is the idea that too much information misleads us. Better judgments result, these studies suggest, from only a tiny amount of information about others. One example of this phenomenon is the college dorm room study in which strangers were asked to look around a student's bedroom and then answer questions about what they thought that student was like. The study suggests that total strangers can sometimes observe more about us than can our closest friends.¹ Another notable study asked students to rate a teacher's effectiveness based simply on two seconds of classroom video. It turned out that those ratings closely matched those of students who actually had the teacher for a full semester. The sweeping conclusion from such studies – that less information leads to better judgments – is exceedingly appealing, seductively scientific, and mostly wrong.

The weight of historical evidence tells a very different story. The quantity of information is irrelevant; it's the relevance of any quantity that matters. Historians may have little to say about character assessments via dorm room scans, but we have much empirical data on estimates in foreign affairs. When diplomats, intelligence analysts, military or political leaders assess their enemies, too little or too much information is not the primary issue. Neither amount will ensure accuracy. Instead, decision makers need at least two things: the relevant information and the capacity to analyze it. Part of acquiring the relevant information depends on observing people in a variety of

¹ Malcolm Gladwell, *Blink: The Power of Thinking Without Thinking* (New York: Back Bay, 2007).

contexts.

Psychologists who study character assessments know that different contexts produce different impressions as well as different behaviors. A teacher observed in one class may appear awkward, imperious, or uncertain. But placed before a new class, with a completely different group dynamic, that same teacher can come across as confident, receptive, and in command of the material.² Context matters. It shapes how we perform as well as how others perceive us. Context is one key factor in forming accurate character assessments, but it is not the only factor.

Any effort at predicting individual behavior must also account for our distinctly human ability to change intentions over time. One classic problem with predictions is that they project our actions into the future based on assessments of our intentions today. But as contexts change, so too can our desires. Complicating matters even further, sophisticated thinkers can often hold multiple motivations simultaneously. We might lean toward one motivation over another, but it is possible to pursue various ends at once, leaving options open for opportunities to knock. Quantitative models can only guess at the probability with which we will favor different positions over time. They therefore cannot input reliable probabilities into any algorithm, making the outputs of any model equally unreliable.

If the first prediction pitfall is the inconsistency of individual motives, the second is the inability to input accurate assessments of those motives into any prediction model. The political scientist, Bruce Bueno de Mesquita, is engaged precisely in this ambitious quest. Devising an algorithm to predict individual behavior, if it were ever possible, would be an extraordinary gift to international affairs.³ Yet the crux of his model rests largely on the inputs to his algorithm. He says

² Malcolm Gladwell, *What the Dog Saw and Other Adventures* (New York: Little, Brown, and Co., 2009).

³ Bueno de Mesquita's enthusiasm for his model might at times lead him to somewhat exaggerated claims about its positive reception by others. At one point in his book, Bueno de Mesquita asserts that the historian John Lewis Gaddis was impressed by his model's ability to correctly anticipate the Cold War's outcome based on information known in 1948. I was surprised to read that Professor Gaddis had acknowledged that "game theory modeling might help sort out important issues," so I contacted him to ask if this were so. Professor Gaddis referred me to a letter he sent to Clive

that in order to predict what people are likely to do, we must first approximate what they believe about a situation and what outcomes they desire. He insists that most of the information we need to assess their motives is already available through open sources. Classified data, he contends, are rarely necessary. On at least this score, he is probably correct. Though skillful intelligence can garner some true gems of enemy intentions, most of the time neither the quantity nor the secrecy of information is what matters most to predicting individual behavior. What matters is the relevant information and the capacity to analyze it.

Bueno de Mesquita spends one section of *The Predictioneer's Game* explaining how, if politicians in 1930s Germany had had access to his mathematical model, the Socialists and Communists would have seen the necessity of cooperating with each other and with the Catholic Center Party, as the only means of preventing Hitler's accession to Chancellor. He assumes that the Catholic Center Party could have been persuaded to align against the Nazis, an assumption that looks much more plausible in a post-World War II world. In 1932, the Catholic Center Party's decision makers were surely not envisioning the future as it actually unfolded. Their bargain at the time no doubt seemed the best choice in a bad situation.

The crucial problem with Bueno de Mesquita's approach is its reliance on accurate assessments of other individuals: their intentions as well as their capabilities. Even if Catholic Center Party leaders could have properly assessed Hitler's true intentions (despite what he wrote in *Mein Kampf*, which could have been dismissed as grandiose rhetoric), they likely reasoned that Hitler could be controlled by other forces. It is extremely difficult if not impossible to form accurate assessment of others without observable data, yet even observable data on human behavior can be highly

Thomas of the *New York Times*. The letter in its entirety reads as follows:

"I haven't seen Bruce or dealt with him for more than a decade now, and I'm surprised that he'd be citing me as someone who would be able to explain his work. We did have some exchanges in the 1990s about the failure of political scientists to predict the end of the Cold War, but I was skeptical then and remain so of all mathematical models that try to account for the complexities of human behavior, his included. For that reason, I've not followed his recent work carefully enough to be able to comment on it with a level of intelligence that would be worthy of the New York Times."

misleading. Following his failed Munich Putsch in 1923, Hitler made every effort to come to power legally and democratically, leading many to conclude that once in power he would continue along that course. The Hitler issue aside, Bueno de Mesquita's model faces an even tougher challenge in cases like those in the 1920s surrounding Gustav Stresemann. Not only was it difficult to know precisely where the German Foreign Minister stood, it is still difficult even today. Understanding why both are challenging sheds light on the problem of long-range forecasts.

PART II - GOOD GERMAN, BAD GERMAN: STRESEMAN AND THE PROBLEM OF PREDICTION

When Philipp Scheidemann took the floor, the Reichstag fell still. It would not stay silent for long. His revelations plunged the Parliament into mayhem. Within minutes of his speech, the parties on the Right exploded in anger. “Traitor!” they shouted. “Treason!” Using their greater numbers, the Socialists tried to shout their opponents back down, but to no effect. Communists shrieked in disbelief at Scheidemann’s allegations, unable to believe what they were hearing about this unwholesome union between Mother Russia and the Fatherland. Reichstag President Paul Löbe repeatedly rang his bell, fruitlessly calling the assembly back to order. At one point, a parliamentarian on the Right leapt up and, pointing to the American Ambassador seated in the gallery, cried, “Why reveal these things to our enemies?”⁴ In the end, Scheidemann’s speech, just days before Christmas 1926, would bring down the Weimar government and force a new coalition into being.

Scheidemann’s speech exposed in stunning detail the ways that Germany was violating the Treaty of Versailles – in stark contrast with Foreign Minister Stresemann’s prominent policy of fulfillment. One of Versailles’s most crucial conditions involved Germany’s consent to disarm and thereby pose no threat to its neighbors. Dr. Gustav Stresemann, a leader of the Right-of-Center German People’s Party who briefly served as Chancellor in 1923, adopted the fulfillment policy in part to wrest Germany from its troubled relations with the Western powers. In just a few years’ time, Stresemann came to be seen by Western publics as a sensible statesman intent on establishing his country as a cornerstone of European peace. Coming to terms with Britain and France at a meeting in Locarno, Switzerland in 1925, Stresemann pledged Germany to join the League of Nations, settle

⁴ “German Royalists Accused of Raising Huge Secret Army,” *Washington Post*, December 17, 1926.

its disputes with eastern neighbors, and preserve the current arrangements in the West. In recognition of his pacific ways, he was awarded the Nobel Peace Prize the following year, along with the British and French foreign ministers.

Stresemann held steady at the Foreign Ministry's helm from 1923 until his death in 1929, guiding German foreign policy through one of the nation's most tumultuous decades. But who was Gustav Stresemann? Was he a good German, a man the West could rely on to set Germany back on track after a disastrous world war? That was how he seemed for years as he assiduously pursued fulfillment. Yet Philipp Scheidemann's speech showed that Versailles's disarmament clauses were far from being fulfilled. Secretly, and in violation of Versailles, the German military, in collaboration with German industry, was conducting a covert rearmament plan beneath the cloak of Soviet Russia. Industrial giants such as the Junker aircraft manufacturer established satellite factories inside Russia. German companies built munitions, arms, and poison gas there, and quietly shipped their illegal war materiel back to Germany. Stresemann was not only well aware of these activities, he appears, at times, to have encouraged them.

Henry Kissinger once called the problem of divining Stresemann's true intentions "one of history's unsolved riddles."⁵ Some historians conclude that Stresemann's policies of overt cooperation and covert defiance of Versailles helped lay the groundwork for Hitler's later war.⁶ More recent historians take the opposite view, insisting that Stresemann actively strove for European amity. They assert that his support of covert rearmament was merely a political necessity.⁷ In the view of these scholars, Stresemann actually sought to check or restrain the Reichswehr's rearmament plans. Historians are still divided in their judgment, and if historians cannot agree on

⁵ Henry Kissinger, *Diplomacy* (New York: Touchstone, 1995), p. 284.

⁶ See for example Hans Gatzke, *Stresemann and the Rearmament of Germany* (Baltimore: Johns Hopkins Press, 1954).

⁷ See for example Jonathan Wright, *Gustav Stresemann: Weimar's Greatest Statesman* (Oxford: Oxford University Press, 2002), and Patrick Cohrs, *The Unfinished Peace After World War I: America, Britain, and the Stabilisation of Europe, 1919-1932* (Cambridge: Cambridge University Press, 2006).

how to assess this important figure, what chance did Stresemann's contemporaries have of accurately gauging his intentions or predicting his behavior?

The British and American uncertainty over Scheidemann's disclosures was not for lack of awareness. The story ran prominently in all the major papers. Under the headline, "German Royalists Accused of Raising Huge Secret Army," the *Washington Post* provided ample space to describing the stormy Reichstag session and the key points of Scheidemann's speech, including, at the article's start, the covert shipment of arms from Russia to Germany.⁸ The following day the *Post's* page-one headline declared "Germany's Cabinet, Defeated, Resigns in Face of Charges."⁹ Evidencing the general respect for Stresemann's leadership in foreign affairs, the *Post* piece ended by observing that Stresemann had not been seriously attacked at any time during the past two days of bitter Reichstag debate, and therefore German foreign policy would likely remain unchanged. The *New York Times* and *Baltimore Sun* also featured the story, while *Time Magazine* referenced it within an article on Weimar's unstable coalitions.

In Britain, *The Manchester Guardian*, having first broken the story, continued to run articles on the unfolding events. The newspaper reported that the issue had become the primary topic of discussion in the press and Parliament. It added that "big sums" from the German taxpayer have been secretly diverted to fund the illegal dealings in Russia and at home.¹⁰ The next day *The Guardian* ran a piece on German gun-running, filled with speculation about possible Reichswehr plans to acquire large quantities of arms from Russia, including rifles, field guns, howitzers, and anti-tank guns.¹¹ The paper followed up the reports on December 21, with a piece entitled, "The Exposure of German Militarists," noting that French Socialist leader Leon Blum had requested an enquiry into

⁸ "German Royalists Accused of Raising Huge Secret Army," *Washington Post*, December 17, 1926.

⁹ "Germany's Cabinet, Defeated, Resigns in Face of Charges," *Washington Post*, December 18, 1926.

¹⁰ "The Distrust of Herr Gessler," *Manchester Guardian*, December 17, 1926, p. 11.

¹¹ "German Gun-Running," *Manchester Guardian*, December 18, 1926, p. 11.

the issues that Scheidemann had raised.¹²

In contrast to the media sensation, the scale of rearmament in Russia was relatively modest. Combined with the training underway inside Germany, however, the two tracks toward military readiness should have been concerning to the former Allies. Western officials understood that some German rearmament was to be expected, and this problem had to be weighed against the desire to keep German reparations flowing. Throughout the 1920s, British statesmen often looked the other way as German violations of Versailles's disarmament provisions continued. That said, if the British had sought to predict Stresemann's future involvement with rearmament, they would have been hamstrung by an inability to interpret his intentions.

The official British response to Scheidemann's revelations proved remarkably muted. The episode had no effect on the government's impressions of Stresemann. It appears not even to have triggered an investigation into the extent of Stresemann's knowledge of the Reichswehr's activities. Instead, Foreign Secretary Austen Chamberlain remained exceedingly deferential to his German counterpart throughout the episode. At a Cabinet meeting on December 1, 1926, Chamberlain described how well he, French Foreign Minister Aristide Briand, and Dr. Stresemann had cooperated at a recent meeting in Geneva. Relations were so congenial that they envisioned the withdrawal of Allied forces from Germany in the very near future in exchange for a financial payment from Germany. Chamberlain hoped for another conference similar to Locarno, but he feared that the sensitive state of European public opinion was not yet ready for such an affair.¹³

At the following Cabinet meeting on December 15, just one day before Scheidemann's speech, but a week after *The Manchester Guardian's* exposé, Chamberlain reported that the International Military Control Commission would at last be fully withdrawn from German territory,

¹² "The Exposure of German Militarists," *Manchester Guardian*, December 21, 1926, p. 7.

¹³ Minutes of the British Cabinet, December 1, 1926, CAB 23/53, Cabinet Office Papers, National Archive, London, http://www.nationalarchives.gov.uk/documentsonline/details-result.asp?Edoc_Id=7969042&queryType=1&resultcount=32

thanks to Briand's acceptance of German good will. The planned withdrawal date had been set for February 1, 1927, but in deference to Dr. Stresemann they reset the date to January 31, as this was the anniversary of the evacuation of Allied troops from Cologne and held symbolic value to the Germans.¹⁴

Chamberlain went on to assert that 99 of the 101 outstanding points not settled at Locarno had one by one been resolved. The remaining two issues involved what would today be called "dual use materials" and the disarmament of the Königsberg fortress. Both the British and French War Offices recognized the danger from the accumulation of stocks of jigs and gauges. These devices could be used for commercial purposes, but they could also be used in weapons. As the minutes reveal, Stresemann's word sufficed to allay any concerns. "Dr. Stresemann had, however, given an emphatic undertaking that there should be no accumulations."¹⁵

The question of disarming the fortress proved more complicated. The Versailles Treaty stated in Article 180 that Germany's system of fortified works along its southern and eastern frontiers shall be maintained in its existing state. The British assumed that this meant the state the fortresses were in at the war's end. But the Germans devised a novel interpretation, insisting that the Article meant that Germany could keep them up to date. Presumably the fortresses had the latest weaponry in 1918, and the Germans wanted them to have the latest weaponry now, in 1926. Though Chamberlain initially insisted on the British interpretation, General Paweltz, the German liaison officer to the International Military Control Commission, vehemently refused to agree. The talks might have foundered on this point, but then "Dr. Stresemann had insisted that the Germans had no offensive ideas and only contemplated the fortresses in their defensive capacity."¹⁶ Again,

¹⁴ Minutes of the British Cabinet, December 15, 1926, CAB 23/53, Cabinet Office Papers, National Archive, London, http://www.nationalarchives.gov.uk/documentsonline/details-result.asp?Edoc_Id=7969046&queryType=1&resultcount=32

¹⁵ Ibid.

¹⁶ Ibid.

Stresemann's assurances were enough, and this provided the basis for renewed negotiations.

The day after Chamberlain informed the British Cabinet that the IMCC's mission would soon end, Scheidemann delivered his stunning Reichstag address. But owing to the Christmas holiday, the British Cabinet did not reconvene until January. When it next met, the entire agenda was consumed by a single item: a crisis in China regarding the seizure of a British concession. In fact, each weekly Cabinet meeting that month centered almost exclusively on the China issue. Unlike normal meetings at which a variety of domestic and foreign affairs were discussed, the China crisis absorbed the Cabinet's near complete attention. Thus the combination of the timing of Scheidemann's speech, the urgency of the China crisis, the favorable light in which Stresemann was seen, and the hopes invested in Stresemann as a peacemaker, all contributed to a tacit overlooking of Germany's transgressions and Stresemann's possible role therein.

If Stresemann had truly been opposed to the Reichswehr's secret program, Scheidemann's speech represented the ideal moment to end it. The Foreign Minister could have insisted that the risks to Germany's image abroad were simply too great. He could then have sought to placate the Reichswehr and industrial concerns by other means. Stresemann's German People's Party drew much of its support from German industry. If anyone knew how to curry favor with industrialists, Stresemann was the one. He might have used his considerable influence to persuade the industrialists who were profiting from rearmament that their interests would be better served by looking West. He could have appeased the industrialists with promises to seek more favorable trade agreements. He could have pointed out that the scale of American Dawes and private loans dwarfed the financial benefits flowing from covert rearmament. The industrialists would never have wanted those to be placed in jeopardy. He could easily have argued that the financial benefits from rearmament could not possibly outweigh the risk of further revelations similar to Scheidemann's. Given Stresemann's close working relationship with Chamberlain and Briand, he could also have

quietly urged his counterparts to raise a ruckus against the Reichswehr's activities, if he had really wished to dissuade the military from proceeding. Instead, he did none of these things. He simply waited to see how strong the West's response would be. When it proved to be innocuous, he supported the program's continuation.

Eager to ensure that no further disclosures would occur, Soviet representative Maxim Litvinov contacted the German Foreign Office about further military cooperation. The Soviets wanted to obtain a clear understanding on the furnishing of the training school in Kazan, which Germany had been financing through illegal means by cooking the books. In May of 1927, Stresemann, along with General Heye and War Minister Gessler, met in the Foreign Ministry to discuss the Soviet requests. With some reservations, Stresemann signed on.¹⁷

Summary.

Any prediction model of Stresemann's behavior would have failed because Western statesmen could not accurately assess his intentions. The problem for Stresemann's foreign counterparts was not their access to information. Once Scheidemann revealed the extent of German violations of Versailles, the American, British, and French diplomatic and intelligence officials had all the information they needed to justify a reassessment of Stresemann's role in rearmament. The problem was their misreading of Stresemann's intentions. If more than eighty years after Stresemann's death, historians cannot agree on what those intentions were, how could his contemporaries have assessed him better?

The answer is that they needed skepticism, not science. They did not need mind-bending arithmetic or complex algorithms. They needed only to challenge their assumptions about the man in question.

¹⁷ Mary Habeck, *Storm of Steel: The Development of Armor Doctrine in Germany and the Soviet Union, 1919-1939* (Ithaca: Cornell University Press, 2003), 83.

PART III - USING THE FORCE: HOW YODA AT THE PENTAGON PLANNED AMERICA'S STRATEGIC FUTURE

There are numbers that count, and numbers that don't. Andrew Marshall has spent a lifetime trying to assess which ones are which. In October 1973, Arab states attacked Israel with overwhelming numerical dominance. The Egyptians deployed some 650,000 soldiers – a massive military force in its own right. Syria, Iraq, and other Arab states added another quarter of a million troops. Against these 900,000 enemies Israel could muster no more than 375,000 soldiers, and 240,000 of those were from the reserves. But the war was really a battle of tanks, and on this score the numbers looked even more daunting. Israel's 2100 tanks confronted a combined Arab fleet of 4,500.¹⁸ On the northern front when the war began, Syria massed 1,400 tanks against 177 Israeli – a crushing ratio of eight to one. Given the extraordinary disparity of force, after Israel recovered from initial losses and decisively won the war, most Western observers interpreted the conflict as proof of Israel's unbreakable will to survive. Yet when Andrew Marshall analyzed the numbers, he saw something else entirely.

Tucked into a non-descript section deep within the Pentagon's labyrinthine rings, the Office of Net Assessment had only just been created months before. ONA's Director, Andrew Marshall, a mathematical wiz kid from RAND, quickly set about his mission: to assess the military balance between competing militaries.

Studying the war's less glamorous details and drawing on the substantial research of others, Marshall and his team discovered an Egyptian army with a Soviet-style flaw. The entire military was astonishingly short on maintenance. When one of its tanks became damaged in battle, Egypt had no effective means for repairing it. Israel, in contrast, had well-trained technicians able to make rapid

¹⁸ Abraham Rabinovich, *The Yom Kippur War* (New York: Schocken Books, 2004).

repairs. It turned out that on average Israeli tanks returned to battle three times, but Egyptian tanks were used only until damaged. In other words, the initial number of tanks was not the best measure.

Superior force, by standard measures, did not win. The number that truly counted was the one which revealed a tank's likely longevity. Counting tanks before the war was a necessary but insufficient exercise. It didn't tell you what you needed to know for assessing the net strength of each side in the conflict. "What impressed me about the '73 War," Marshall explains, "was how asymmetric it was. Israel was not only much better prepared to recover and repair its tanks, it also dominated the battlefield, making recovery possible."

When Marshall and his analysts next looked at the Soviet Union's capacity for repairs, they found that the U.S. had a distinct and meaningful advantage. The bulk of the Soviet forces were comprised of conscripts, young men compelled to serve for two years in the army or three in the navy. Most were poorly trained and lacking technical know-how. American soldiers conversely were given better, longer, and more specialized training. Each unit working on ships or aircraft contained men able to perform some repairs when necessary. The Soviet military didn't work that way. Most of the time, when an engine or other critical part of an aircraft, tank, or ship malfunctioned, the Soviets had to send that part back to a depot or factory for repair. The Soviet Air Force, for example, purchased six engines for each engine position on its aircraft. The U.S. bought only one and a quarter – a dramatic cost saving measure when multiplied by thousands of planes. Those costs, of course, counted not just in rubles, but in time. The Soviet delays in servicing aircraft parts meant that American planes would be available more of the time when needed most.

Likewise, American ships had on board crews that could make repairs on the spot, but Soviet naval crews did not possess the same level of maintenance training. The longer their ships were at sea, the less effectively they would function. While *Time* and other popular magazines were counting battleships, keeping Americans focused on the numbers of ships in each side's fleet,

Marshall recognized that less obvious asymmetries mattered far more. The simple and seemingly insignificant difference in repair capabilities meant that Soviet forces would come under extreme pressure during a protracted conflict.

Ensuring that America could continue to strike and engage the Soviets in a prolonged military conflict meant that the U.S. would ultimately have the advantage. It was this type of thinking that contributed to America's Cold War strategy. In Marshall's case, the insight derived not from sophisticated technology but from unorthodox thinking about how best to compare competing military forces.

In the 1976-78 period, ONA's attention turned to Soviet strategy in Northern Europe. In contemplating the Soviets' likely moves in a European war, U.S. experts assumed that part of Soviet strategy would involve an attack down through Norway. The Barents Sea port at Murmansk represented Russia's western-most border of northern Europe in the divided Cold War world. If Soviet forces did move aggressively at any point along the borders between NATO and Warsaw Pact states, the US was committed to a rapid deployment of ten American divisions to reinforce the central front of NATO – a massive and costly undertaking.

Analysts assumed that the Soviets would send their attack submarines into the Atlantic in order to disrupt American deployments. However, military analysts had noticed a surprising anomaly in Soviet naval operations. Although American attack submarines were positioned to intercept Soviet subs if they moved out from the Barents Sea, the Soviets were holding their subs back. They were not conducting operations as expected. Something didn't add up.

"One of the things that happens from time to time," Marshall explained, "is that you have to revise your entire notion of how your opponent sees things." After reviewing fresh analysis of Soviet doctrine and intentions, Marshall concluded that the Soviets actually saw this whole region in largely defensive terms.

“I remembered something that Norwegian military officials had said to me a decade earlier in 1964. They realized that the Soviets must have viewed that sea region as essential to their air defense perimeter, and they would want to push their air defenses out.” The Soviets, Marshall concluded, wanted to create and protect a bastion for their strategic missile submarines as well.

“Your view of what the enemy is up to and what he is thinking can shift very rapidly,” Marshall says. “New data can surprise you and cause you to revise both your assessment of the enemy and the appropriateness of your strategy.”

No high-tech surveillance or cloak-and-dagger spies were needed to change the U.S. perceptions of Soviet behavior. Years of studying Soviet strategy was necessary but not sufficient. ONA’s breakthrough required a willingness to challenge its own preconceptions.

Thinking like the enemy is one key to successful forecasts. Another is the ability to recognize and gauge the impact of long-term trends. Marshall pays close attention to both. In the 1950s, while working at RAND, a colleague named Charlie Hitch made a curious but seemingly innocuous observation. Hitch, a Harvard-trained Rhodes scholar, who worked for the Office of Strategic Services during the Second World War, had been teaching at Oxford before RAND lured him away to its headquarters in Santa Monica. Studying 200 years of data, Hitch saw that America’s economy had grown at a rate of roughly one percent more than Britain’s annually. In any single year, or even within a span of a decade or more, the impact of this variation in growth rates would not be significant. But Hitch’s point was that over a century or longer, the impact would be profound. Financial dominance would mean military dominance. It would result in the supplanting of Britain by America as a global superpower. It was not a foregone certainty that America would overtake Britain as it did. Many populous, resource-rich nations do not achieve great power status for

countless reasons. Hitch believed that modest, sustained economic growth was one key cause of American ascendance. Though initially inconsequential, the net effect over time of a mere one percent difference would prove a monumental advantage.¹⁹

That one percent was a number that counted. It mattered in the long run race to hegemony. And numbers were Marshall's forte. Trained as an econometrician, he later switched fields to mathematical statistics because he objected to the then dominant view in economics of rational decision making. The notion that *Homo Economus* always sought (and was informed enough) to maximize benefits did not accord with Marshall's view of human behavior. It has taken economics decades to come around, grudgingly, to a more flexible view embodied in the emerging sub-field of behavioral economics.

Marshall's approach to forecasting can be better understood when seen in contrast to other, more well-known futurists. Consider the recent *New York Times* best-selling author, George Friedman.

Take everything you know about China and throw it out the window. China is not the rising power you thought it was. Instead of becoming a peer competitor to the United States, China will instead crumble into regionally-controlled, largely turbulent governments? Rather than becoming a global superpower, China will buckle under the weight of economic mismanagement and fracture at the hands of restive masses.

This is the view of George Friedman, CEO of the private intelligence firm Stratfor. Friedman, a Ph.D. in government from Cornell, founded the company in 1996 to serve as an intelligence provider to industry, educational institutions, and anyone willing to pay for his analyses. Apparently, there are many consumers out there. Stratfor's website claims that some two million

¹⁹ Two useful studies of RAND in the 1950s are Alex Abella, *Soldiers of Reason: The RAND Corporation and the Rise of the American Empire* (Orlando: Harcourt, 2008), and Fred Kaplan, *The Wizards of Armageddon* (Stanford: Stanford University Press, 1991).

readers currently receive their free intel updates. The number of paid clientele is not public information.

What is public is Friedman's take on the future. In his latest book, *The Next 100 Years*, he describes the geopolitics that will drive the coming America-dominated century.²⁰ The main contours of the future are as follows. China, as discussed, will splinter, and Russia, in an effort to recapture a hint of its lost grandeur, will attempt to control parts of the former Soviet Union. This effort, which will be blocked by a coalition of Eastern European states led by the newly rising power of Poland and backed by the United States, will end in Russia's final collapse. Japan will swoop in to gobble up Russia's Pacific regions, while Poland will push eastward (as it has done before) to expand its terrain. By mid-century, the two former American allies, Japan and Turkey, will form an axis to challenge U.S. hegemony. A great war will be fought in space, including a Pearl Harbor-like surprise attack by Japan launched from behind the moon. Ultimately, of course, America triumphs, thanks to its superior economic base, just as in World War II. Although a golden age of unchallenged U.S. global supremacy ensues, toward the century's close America finds itself headed for war with the rising power of Mexico, eager to redraw the boundaries it once lost in the 1800s.

Friedman views the future through a decidedly realist lens. Realism (not to be confused with "realistic") is a theoretical school of thought within the field of international relations. It presumes that nations act primarily to enhance their national security and thereby their power. Consequently, in Friedman's 21st century, armies are frequently on the march, boundaries are being redrawn, and states annex parts of each other whenever possible. There is no notion that other factors beside the raw pursuit of power could motivate states. There is no mention of how different domestic political coalitions within a state could have varying agendas and diverse understandings of their nation's interests. There is also no acceptance that economic interdependence might militate against war.

²⁰ George Friedman, *The Next 100 Years: A Forecast for the 21st Century* (New York: Doubleday, 2009), p. 251.

Marshall, in contrast, has spent a lifetime examining the disparate, competing power centers within nations, scrutinizing how each interest group vies for influence. He has seen how bureaucratic politics shape policy outcomes as much or more than raw security calculations. Failing to grasp this common, critical aspect of governments is what makes many futurists miss the mark.

Of course, Friedman might be correct. Turkey and Japan might come to align against the U.S., Poland might be the great European power supplanting Russia, Germany, and France. And China might dwindle in significance. All are certainly conceivable. In the epilog, Friedman admits that wholly accurate predictions of the long-term are impossible. That, of course, is not the aim. “I may be wrong about which countries will be great powers and how they will resist the United States,” he writes. “But what I am confident about is that the position of the United States in the international system will be the key issue of the 21st century and that other countries will be grappling with its rise.”²¹ Friedman’s bottom line: the U.S. is not on the verge of decline; its ascendance is just beginning. If that is Friedman’s aim – to state the obvious with elaborate tales – then the question is whether such scenarios actually help us to plan for the future.

Today, scenarios have become the gold standard for forecasting. They are used heavily by the National Intelligence Council, the think tank of the DNI. Since ONA is the Pentagon’s in-house think tank, I asked Marshall what he thought of scenario writing as a means for long-range planning. He believes that it can be helpful if done properly. The intelligence community, he suggests, has often produced bland assessments, providing a few uninteresting notions of what the future might be. The aim of scenario writing, he says, is to help you organize your thinking about future uncertainties. Scenario writing should be more targeted and goal-driven. The alternatives you look at should depend on the decision you want to illuminate. You want the different futures to vary in ways that matter most to your decision.” For example, if a government is contemplating what kind

²¹ George Friedman, *The Next 100 Years: Forecasts for the 20st Century* (New York: Doubleday, 2009).

of navy to build, the various futures should be directly relevant to that question. Each scenario should examine the changes that will affect that decision.

Given that organizations often make long-range plans, only to be surprised when sudden, exogenous shocks transform the landscape they had previously imagined, I asked Marshall what measures he believed he could bank on. Marshall identified three factors to which he pays close attention when assessing a country's future might. First, he sees demographics as an ineluctable force that is hard to undo. Only seldom will shocks like the virulent spread of diseases significantly alter population projections, as has happened with AIDS in Africa. The scholar William H. McNeill, in his 1990 collection of lectures *Population and Politics Since 1750*, has argued for the primacy of demographics as a major factor in assessing a country's long-term power.²² McNeil's research may have influenced Marshall's thinking after the Cold War. In his essay on strategy as a profession, Marshall names very few books as influential to his own work: McNeill's study of demographics and Herbert Goldhamer's book, *The Advisor*.²³

The second factor Marshall considers is a nation's underlying economic trajectory. In the short-term, economic growth can rise or fall from year to year. But over the longer-term span of decades, a country's natural resources, labor pool, and modes of organization should translate into national might. Here Charlie Hitch's observations at RAND may have furthered Marshall's thoughts on this subject, but Marshall was originally trained as an econometrician, so his attention to the subject is life-long.

The third factor Marshall notes is a country's culture. Because cultures are rarely susceptible to rapid change and can profoundly affect decision making, they serve as good predictors of a nation's behavior over time. Marshall is not a cultural determinist by any means. He tries to understand the complex organizational cultures within a nation's governmental bureaucracies as well

²² William H. McNeill, *Population and Politics Since 1750* (Charlottesville: University of Virginia Press, 1990).

²³ Herbert Goldhamer, *The Advisor* (New York: Elsevier, 1978).

as its key industries. He cites Michel Crozier's 1967 study, *The Bureaucratic Phenomenon*, as an important work in this vein.

In short, despite his highly quantitative background, Marshall's methods are not predominantly based on number crunching models. Instead, he seeks out the less obvious, and more crucial, data affecting enemy behavior. He does not reduce that data to numerical values when such data as cultural tendencies or decision-making processes would not readily lend itself to quantification. And he uses scenarios as approximate guides, but only if those scenarios are specific and targeted at particular projections.

PART IV - CONCLUSIONS

Consistently accurate prediction of individual behavior in foreign affairs is highly unlikely because individual motives are so often opaque. In all of the historical cases described above, two pitfalls beset accurate prediction: inaccurate assessments of individual intentions and the inability to translate assessments into meaningfully quantifiable measures.

The experience of British statesmen in the 1920s is simply one among many examples of failed prediction due to inaccurate assessment of enemy intentions. Only if one believes that individual agency is irrelevant to policy outcomes could one hope that prediction models can provide reliable forecasts. At best, they can help identify trends. But mathematical models are not necessary for trend-spotting, as the experiences of Andrew Marshall suggest. Marshall's forecasting methods show that numbers can matter, provided you identify that numbers that truly count. Even when data lends itself to quantification, such as numbers of tanks, those quantities can also be irrelevant. The point for prediction models is that inputs are everything. The most sophisticated algorithms using the wrong inputs will still produce faulty forecasts. Getting the inputs right still requires human insight.

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